

CLAIMS

1. An apparatus for generating corona discharges, comprising a corona discharge space;
5 a discharge electrode disposed in the corona discharge space; as well as a high voltage source, an output of which is connected to the discharge electrode, **characterized in that** at least one element having diode functionality is connected between the high voltage source and the discharge electrode, which element delivers a DC high voltage component comprising a superposed AC high voltage component on the discharge electrode.
- 10 2. An apparatus according to claim 1, **characterized in that** the element having diode functionality is a semiconductor, which is configured as a rectifier, a transistor, a diode or a thyristor, for example.
- 15 3. An apparatus according to claim 1 or 2, **characterized in that** the element having diode functionality is configured as a single-phase rectifier.
- 20 4. An apparatus according to claim 1 or 2, **characterized in that** the element having diode functionality is configured as a bridge rectifier.
- 25 5. An apparatus according to any one or more of the preceding claims, **characterized in that** the DC high voltage is 10-60 kV, more in particular 5-35 kV.
6. An apparatus according to any one or more of the preceding claims, **characterized in that** the frequency of the AC high voltage is 0.1-100 kHz, more in particular 5-30 kHz.
- 30 7. An apparatus according to any one or more of the preceding claims, **characterized in that** the discharge electrode is an elongated body having several projecting edges or cams.

8. An apparatus according to claim 7, **characterized in that** said projecting edges extend on either side of said body.

9. An apparatus according to any one or more of the preceding claims, **characterized in that** the corona discharge space is built up of 5 at least two parallel, electrically earthed plates, between which plates the discharge electrode extends in parallel relationship therewith.

10. An apparatus according to any one or more of the preceding claims, **characterized in that** the element having diode functionality is connected in series with an LR-circuit, which LR-circuit is connected to 10 the discharge electrode.

11. An apparatus according to claim 10, **characterized in that** the induction value L of the LR-circuit is adjustable.

12. An apparatus according to claim 10 or 11, **characterized in that** said inductance value ranges between 1 nH and 1000 mH.

15. 13. An apparatus according to any one or more of the preceding claims, **characterized in that** the high voltage source is an AC/DC pulse converter.

14. An apparatus according to any one or more of the preceding claims, **characterized in that** the high voltage source is an AC/DC/AC 20 converter.

15. A discharge electrode for use in an apparatus according to any one or more of the preceding claims and as defined in claim 7 or 8.